

WHAT IS CLAIMED IS:

1. A fastening component for fastening together a first component and a second component used in a plasma processing tool, comprising:
 - a first surface configured to be exposed to plasma processing performed in the plasma processing tool;
 - a second surface configured to contact the first component;
 - a stem extending from the second surface and configured to at least partially protrude through the first component and the second component; and
 - a locking pin extending from at least one side of the stem and configured to contact the second component, wherein at least one of the first surface, the second surface, the stem, and the locking pin is at least one of made of and coated with a material that is highly resistant to erosion resulting from plasma processing.
2. The fastening component of Claim 1, wherein the material is at least one of anodized aluminum, polyimide, silicon, quartz, and ceramic.
3. The fastening component of Claim 1, wherein the material is a combination of at least two of anodized aluminum, polyimide, silicon, quartz, and ceramic.
4. The fastening component of Claim 1, wherein a cross-section of the stem is smaller than the second surface.

5. The fastening component of Claim 1, wherein a longitudinal axis of the locking pin is orthogonal to a longitudinal axis of the stem.

6. The fastening component of Claim 1, wherein the locking pin is attached to the stem by an interference fit.

7. The fastening component of Claim 1, wherein the locking pin is attached to the stem by brazing.

8. A fastening system for fastening a first object to a second object, comprising:

a first fastening component including a first contacting surface configured to contact the first object, a stem extending from the first surface, and a locking pin extending from at least one side of the stem; and

a second fastening component including a hole, a fastening surface configured to contact the locking pin, and a second contacting surface configured to contact the second object,

wherein the stem, the locking pin, and the hole are configured such that the first object and the second object are fastened to each other when:

the locking pin protrudes through first object, the second object, and the hole, and
the stem is rotated such that the locking pin contacts a locking area of the fastening surface.

9. The fastening system of Claim 8, wherein the second contacting surface is configured to be movable relative to the second object to change a fastening force between the first object and the second object.

10. The fastening system of Claim 9, wherein the second contacting surface includes a first threaded surface, and the second object includes a second threaded surface configured to engage with the first threaded surface.

11. The fastening system of Claim 9, wherein the second fastening component is configured to be inserted into an opening of the second object.

12. The fastening component of Claim 8, wherein a longitudinal axis of the locking pin is orthogonal to a longitudinal axis of the stem.

13. The fastening component of Claim 8, wherein the locking pin is attached to the stem by an interference fit.

14. The fastening component of Claim 8, wherein the locking pin is attached to the stem by brazing.

15. The fastening component of Claim 8, wherein the hole includes a first portion shaped to receive the stem and a second portion shaped to receive the locking pin.

16. The fastening component of Claim 8, wherein the second fastening component includes a restricting element provided at the fastening surface and configured to restrict rotation of the stem.

17. The fastening component of Claim 16, wherein the restricting element is a pin attached to the fastening surface.

18. The fastening system of Claim 8, further comprising:

a locking element configured to restrict movement between the second contacting surface and the second object.

19. The fastening system of Claim 18, wherein the locking element includes a helical coil.

20. The fastening system of Claim 8, wherein at least a portion of the first fastening component is at least one of made of and coated with a material that is highly resistant to erosion resulting from plasma processing.

21. The fastening component of Claim 20, wherein the material is at least one of anodized aluminum, polyimide, silicon, quartz, and ceramic.

22. The fastening component of Claim 20, wherein the material is a combination of at least two of anodized aluminum, polyimide, silicon, quartz, and ceramic.

23. A method for fastening a first object to a second object, wherein the first object and the second object are used in a plasma processing tool, comprising:

providing a fastening component with an exterior surface made out of a material that is highly resistant to erosion resulting from plasma processing, wherein the fastening

component includes a first surface, a stem extending from the first surface, and a locking pin extending from at least one side of the stem;

inserting the stem and the locking pin through the first object and the second object;

and

rotating the stem such that the locking pin contacts a second surface of the second object and such that the first object and the second object are fastened between the locking pin and the first surface.

24. The method of Claim 23, wherein the providing step includes at least one of making or coating at least a portion of the fastening component with at least one of anodized aluminum, polyimide, silicon, quartz, and ceramic.

25. The method of Claim 23, wherein the providing step includes at least one of making or coating at least a portion of the fastening component with a combination of at least two of anodized aluminum, polyimide, silicon, quartz, and ceramic.

26. The method of Claim 23, further comprising:
positioning a stopping element at the second object to restrict rotation of the stem after the stem and the locking pin are inserted through the first object and the second object.

27. The method of Claim 23, further comprising:

positioning an elastic element between the first surface and the first object or between the first object and the second object such that the rotating step creates a spring load between the first object and the second object.

28. The method of Claim 27, wherein the elastic element is electrically conductive.

29. The method of Claim 23, further comprising:
providing the second object with a hole including a first portion shaped to receive the stem and a second portion shaped to receive the locking pin.

30. A method for fastening a first object to a second object with a first fastening component and a second fastening component, comprising:

inserting the first fastening component through the first object, through at least a portion of the second object, and through the second fastening component;

rotating the first fastening component less than a full rotation such that the first fastening component contacts an outer surface of the second fastening component and such that the first object and the second object are fastened to each other.

31. The method of Claim 30, further comprising:
providing the first fastening component with a stem and a locking pin extending from the stem.

32. The method of Claim 31, wherein the rotating step includes:

rotating the stem such that the locking pin contacts the outer surface.

33. The method of Claim 30, further comprising:

positioning a restricting element at the second fastening component to prevent full rotation of the first fastening component when the first fastening component protrudes through the second fastening component.

34. The method of Claim 30, further comprising:

providing the second object with a hole; and

inserting at least a portion of the second fastening component into the hole.

35. The method of Claim 34, wherein,

the portion of the second fastening component includes a first threaded surface and the hole includes a second threaded surface corresponding to the first threaded surface.

36. The method of Claim 34, further comprising:

adjusting the position of the second fastening component within the hole to change a fastening force between the first object and the second object.

37. The method of Claim 30, further comprising:

at least one of manufacturing and coating at least one of the first fastening component and the second fastening component with a material that is highly resistant to erosion resulting from plasma processing.

38. The method of Claim 37, wherein the material is at least one of anodized aluminum, polyimide, silicon, quartz, and ceramic.

39. The method of Claim 37, wherein the material is a combination of at least two of anodized aluminum, polyimide, silicon, quartz, and ceramic.

40. The method of Claim 30, further comprising:
positioning an elastic element between the first object and the second object such that the rotating step creates a spring load between the first object and the second object.

41. The method of Claim 30, further comprising:
positioning an elastic element between the first fastening component and the first object such that the rotating step creates a spring load between the first object and the second object.

42. The method of Claim 30, further comprising:
positioning an elastic element between the second fastening component and the second object such that the rotating step creates a spring load between the first object and the second object.

43. The method of Claim 40, wherein the elastic element is electrically conductive.